

C L A I M S**10/525476**  
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**ART 34 AMDT**

1. Method of removing solid carbon dioxide solid carbon dioxide from cryogenic equipment, comprising the steps of:
  - (a) introducing a stream including ethane to said cryogenic equipment to convert solid carbon dioxide to liquid form whereby a mixture of liquid ethane and liquid carbon dioxide is formed; and
  - (b) removing the mixture of liquid ethane and carbon dioxide from the cryogenic equipment.
2. Method according to claim 1, in which the cryogenic equipment is used to produce liquefied natural gas (LNG).
3. Method according to claims 1 or 2, further comprising the step of adjusting the relative percentages of ethane and carbon dioxide for a given pressure and temperature such that the mixture of liquid ethane and carbon dioxide is near azeotropic.
4. Method according to any one of claims 1 to 3, in which the stream including ethane contains carbon dioxide up to 65 %mol.
5. Method according to any one of claims 1 to 4, in which the method further comprises the step of separating the mixture of liquid ethane and carbon dioxide to form a first product rich in ethane and a second product rich in carbon dioxide.
6. Method according to claim 5, in which the first and second product are separated by distillation, extraction, absorption, crystallisation, decanting, multi-stage extraction or other chemical treatments or any combination thereof.

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7. Method according to any one of claims 1 to 6, in which the mixture of liquid ethane and carbon dioxide is azeotropic, and is separated to form a first product rich in ethane and a second product rich in carbon dioxide by  
5 extractive distillation or membrane-based separation techniques or a combination thereof.

8. Method according to any one of claims 5 to 7, in which one or more alkanes or their isotopes are introduced to the mixture prior to the separation step.

10 9. Method according to any one of claims 5 or 8, in which the stream that includes ethane comprises the first product rich in ethane that is recycled to step (a).

10. Method according to any one of claims 1 to 9, wherein the cryogenic equipment contains LNG, the method  
15 comprising the steps of:

(a') removing the LNG from the said cryogenic equipment;

(a) introducing a stream including ethane to convert solid carbon dioxide to liquid form whereby a mixture of liquid ethane and liquid carbon dioxide is formed; and

20 (b) removing the mixture of liquid ethane and liquid carbon dioxide from the cryogenic equipment.